SERIAL NO. 3352

ONKYO® SERVICE MANUAL

COMPACT DISC PLAYER
MODEL DX-5700

Black model

BUDN, BUD	120V AC, 60 Hz
BUG	220V AC, 50Hz
BUU, BUUX	110/120/220/240V AC, 50/60Hz
BUQA, BUQB	240V AC, 50 Hz

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

SPECIFICATIONS

Signal readout system:	Optical non-contact
Reading rotation:	About 500~200 r.p.m. (constant linear velocity)
Linear velocity:	1.2~1.4m/s
Error correction system:	Cross interleave readsolomon code
Decoded bits:	18 bits linear
Sampling frequency:	352.8kHz (Eight-times oversampling)
Number of channels:	2 (stereo)
Frequency response:	2Hz~20kHz
Total harmonic distortion:	0.0025% (at 1kHz)
Dynamic range:	100dB
Signal to noise ratio:	110dB
Channel separation:	103dB (at 1kHz)
Wow and Flutter:	Below threshold of measurability
Power consumption:	18 watts
Output level:	2 volts r.m.s.
Dimensions (W×H×D):	435×131×365 mm 17-1/8″×5-1/8″×14-7/16″
Weight:	8.2kg, 18.1lbs

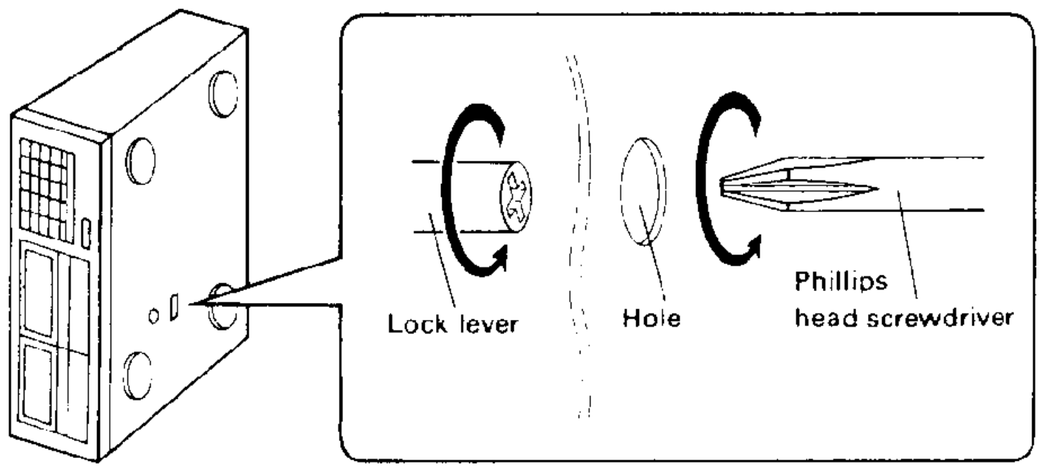
Specifications are subject to change without notice.

ONKYO
AUDIO COMPONENTS

SERVICE PROCEDURES

1. How to Release the Transport Lock

To protect the optical assembly including the laser pickup from vibration related damage during shipping, this unit is equipped with a transport lock lever located on the base.



- Use a screwdriver to turn the lock lever (about 90°) in the round hole in the direction of arrow (↺).
- Before transporting the unit again, stand it with its left side facing down, and turn on the power. Wait 2-3 seconds and then turn the lock lever in the opposite direction of the arrow.

Fig. 1

2. Safety-check out

After correcting the original service problem, perform the following safety check before releasing the set to the customer:

Connect the insulating-resistance tester between the plug of power supply cable and chassis.

Specifications: more than 10Mohm at 500V.

3. Procedures for replacement of flat packaged ICs

1. Tools to be used:

(1) Soldering iron . . . . Grounded soldering iron or soldering iron with leak resistance of 10 Mohms or more.

Form of soldering iron's tip:

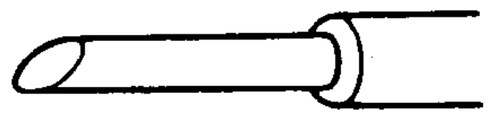


Fig. 2

(2) Magnifying glass . . . for checking of finished works

(3) Tweezers . . . . . for handling of IC and forming of leads

(4) Grounding ring . . . . Countermeasure for electrostatic breakdown

(5) Nipper . . . . . for removing defective IC

(6) Small brush . . . . . for application of flux

2. Work Procedures:

(1) Remove the defective IC

Cut all leads of the defective IC one by one using a nipper and remove the IC.

(2) Clean the pattern surface of the PC board.

Get rid of the remaining leads and solder.

(3) Check and from the leads of the new flat packaged IC to be installed.

From every lead on the new IC using a pair of tweezers, so that all of them are aligned neatly without being risen, twisted or inclined toward one side. Especially the rising portion of every lead must be formed with greatest care.

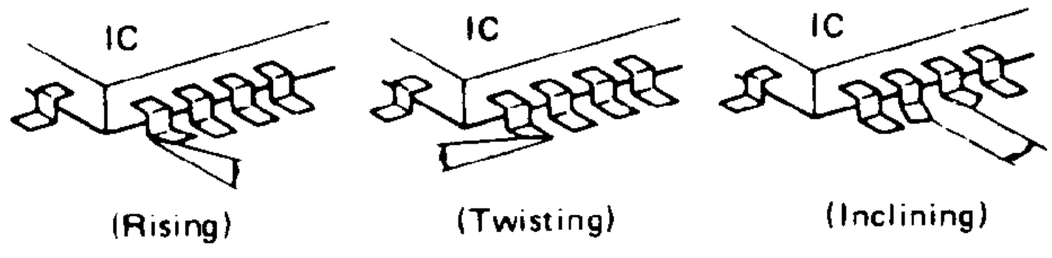


Fig. 3

(4) Apply flux to the PC board.

Apply flux to the pattern surface of the PC board which has been cleaned, as shown in the illustration.

The area to be applied with flux is the portion of about 2.5mm in width where the IC's leads are to be soldered.

Be careful to apply minimum amount of flux required so as not to smear it on unwanted areas.

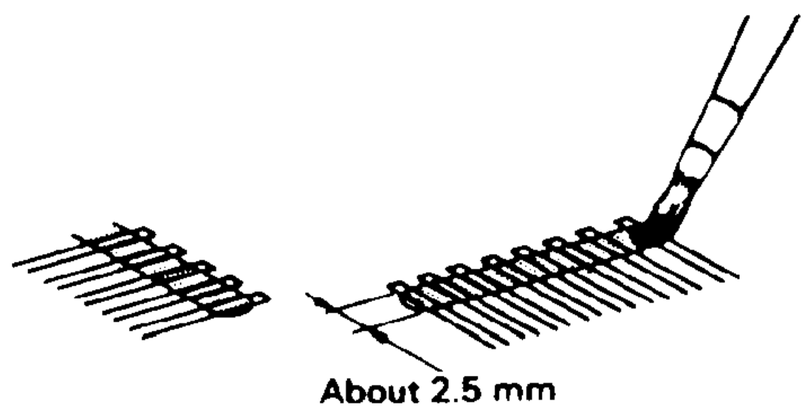


Fig. 4

(5) **Temporarily tighten the IC**

Carefully align the pattern and IC's leads, so that the IC will be temporarily tightened to the pattern on the four leads at the corners. At this time, soldering is required, but no need to apply soldering material.

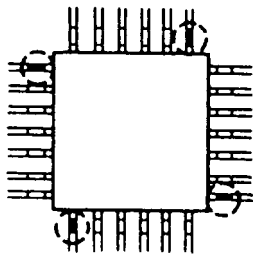


Fig. 5

(6) **Apply flux to IC's leads**

Apply flux to the areas of IC's leads where soldering is to be performed. Be careful not to smear flux on the root portion of any lead or the body of IC.

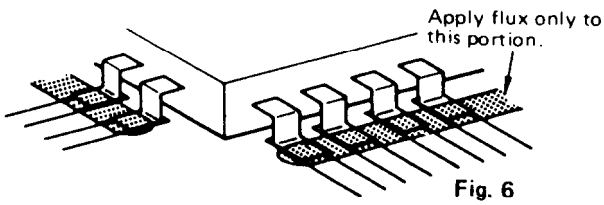


Fig. 6

(7) **Soldering**

While attaching the tip of the soldering iron to the soldering point as shown in the illustration, feed 2 –5mm of soldering wire. Then, slowly move the iron in the direction indicated by the arrow in the illustration, so that the leads will be soldered to the pattern. Move the iron in the rate of approximately 1cm in 5sec. Proceed with your work while confirming a clean fillet of solder is formed on each lead, subsequent to the melting of flux.

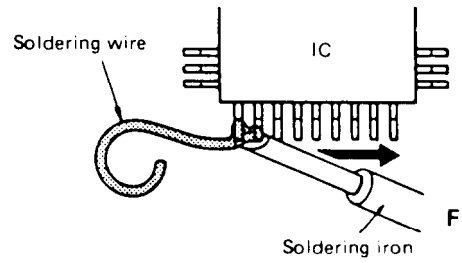


Fig. 7

CAUTION

1) If you move the iron too quickly, loose soldering is likely to result.
2) Be especially careful when soldering the first lead where loose soldering is most liable to be formed.

(8) **Check the results**

When soldering of all leads is finished, check the soldered portion on every lead with a magnifying glass. A tester must not be used or checking of any soldered position

NOTE ON COMPACT DISC

- **Holding Compact Discs**

Hold Compact Discs by the edges so that you do not touch the surface of disc. Remember that the side of the disc with the "rainbow" reflection is the side containing the audio information.

Do not attach tape or paper to the label side of the disc and always be careful not to leave fingerprints on the side that is played.

- **Storing Compact Discs**

Store Compact Discs in a location protected from direct sunlight, high heat and humidity and extremely high and low temperatures. Discs should never be left in the trunk or interior of an automobile in the sun since the temperature can become very high in such a closed environment.

Always store Compact Discs in the holders in which they were sold. Never leave a disc in the player's disc holder for a long period of time.

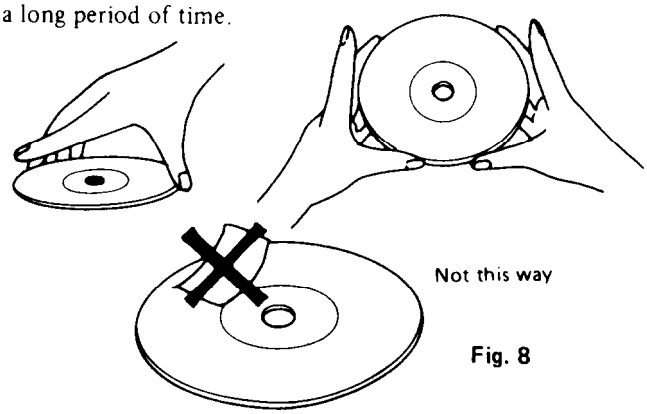


Fig. 8

- **Cleaning Compact Discs**

Before playing a disc wipe off the playing surface with a soft cloth to remove dust and other soil. Wipe the surface in straight lines from the center of the disc outward, not in a circular motion as you would with a phonograph record.

Do not use benzene, chemical cleansers or phonograph record cleaning solutions to clean Compact Discs. Also avoid static electricity prevention solutions since they can damage the surface of Compact Discs.

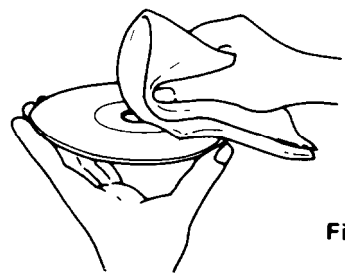


Fig. 9

Problems Caused by Dew

Dew can form inside a Compact player when it is brought from a cold environment into a warm room, when a room is rapidly heated and if a player is left in a humid environment.

This dew can prevent the laser pickup from reading the data contained in the pits in the disc surface. If the player does not operate properly because of dew, remove the disc and leave the player's power switch on for about one hour to remove all moisture.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMMISION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

Laser Diode Properties

- Material: GaAS/GaAlAs
- Wavelength: 780nm
- Emission Duration: continuous
- Laser output: max. 0.5mW*

  *This output is the value measured at a distance about 1.8mm from the objective lens surface on the Optical Pick-up Block.

LASER WARNING LABEL

The label shown below are affixed.

1. Warning label

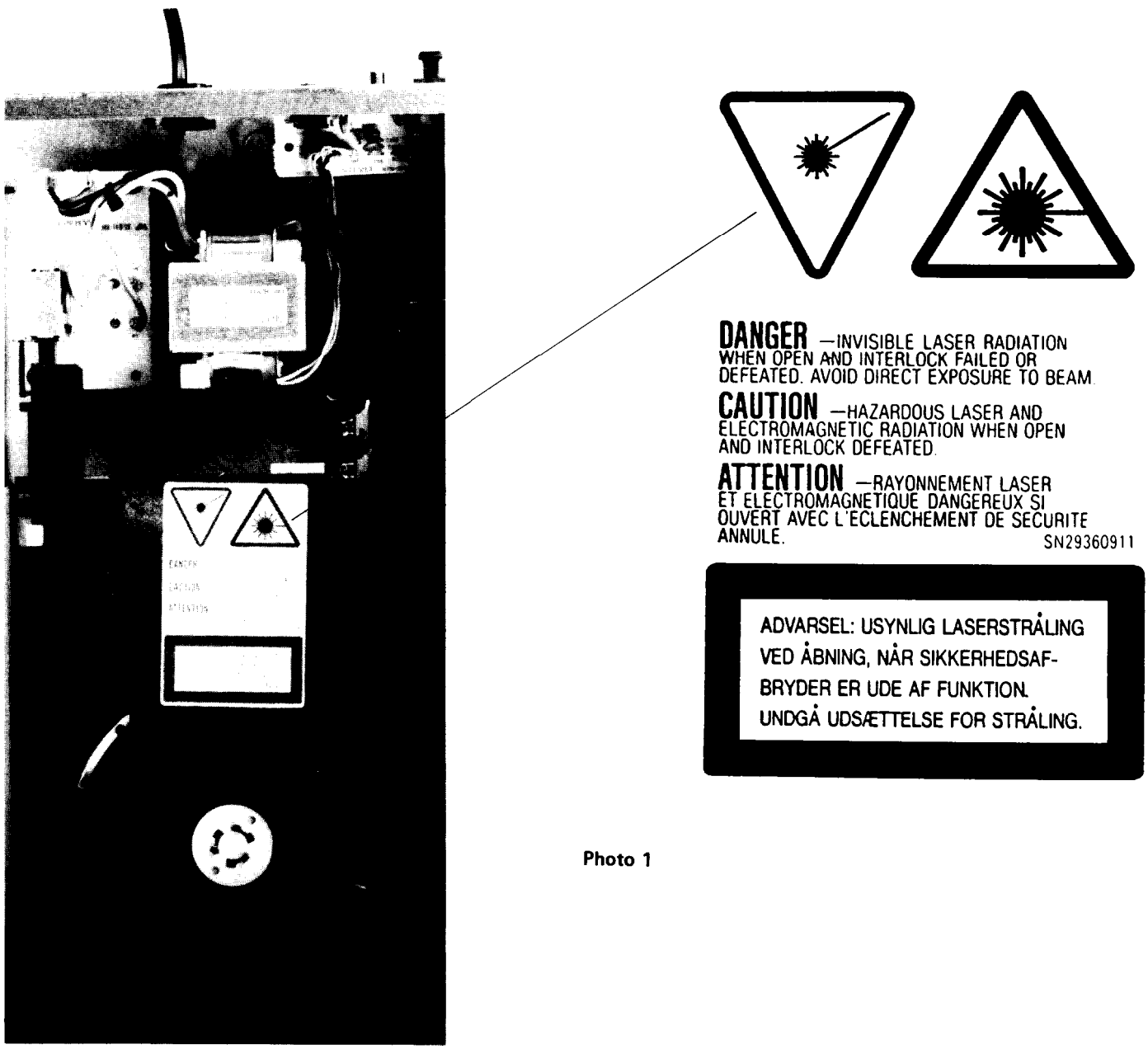

DANGER —INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION —HAZARDOUS LASER AND ELECTROMAGNETIC RADIATION WHEN OPEN AND INTERLOCK DEFEATED.
ATTENTION —RAYONNEMENT LASER ET ELECTROMAGNETIQUE DANGEREUX SI OUVERT AVEC L'ECLENCHEMENT DE SECURITE ANNULE.
SN29360911
ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAF-BRYDER ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

Photo 1

2. Certification label (UD: 120V model)

This label is located on the back panel.

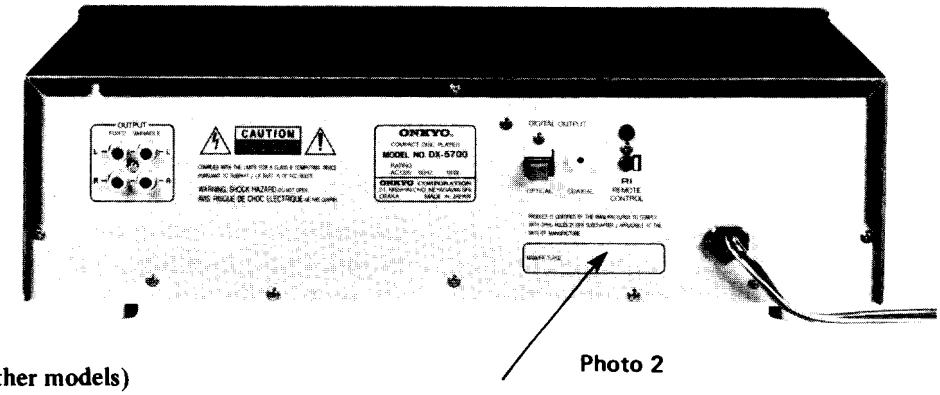


Photo 2

3. Class 1 label (Other models)

This label is located on the back panel.

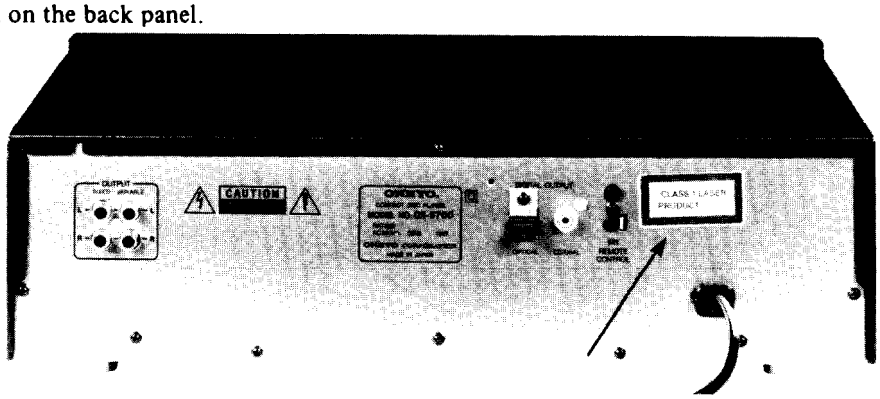
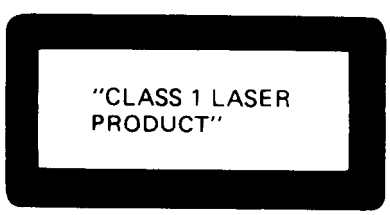


Photo 3

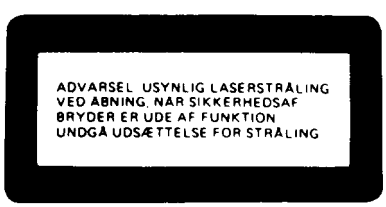
ADVARSEL



Denne mærkning er anbragt på apparatets højre side og indikerer, at apparatet arbejder med laserstråler af klasse 1, hvilket betyder, at der anvendes laserstråler af svageste klasse, og at man ikke på apparatets yderside kan blive udsat for utilladelig kraftig stråling.

APPARATET BØR KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

Indvendigt i apparatet er anbragt den her gengivne advarselsmærkning, som advarer imod at foretage sådanne indgreb i apparatet, at man kan komme til at udsætte sig for laserstråling.



VAROITUS! Laite sisältää laserdiodin, joka lähettää (näkymätöntä) silmille vaarallista lasersäteilyä.

Fig. 10

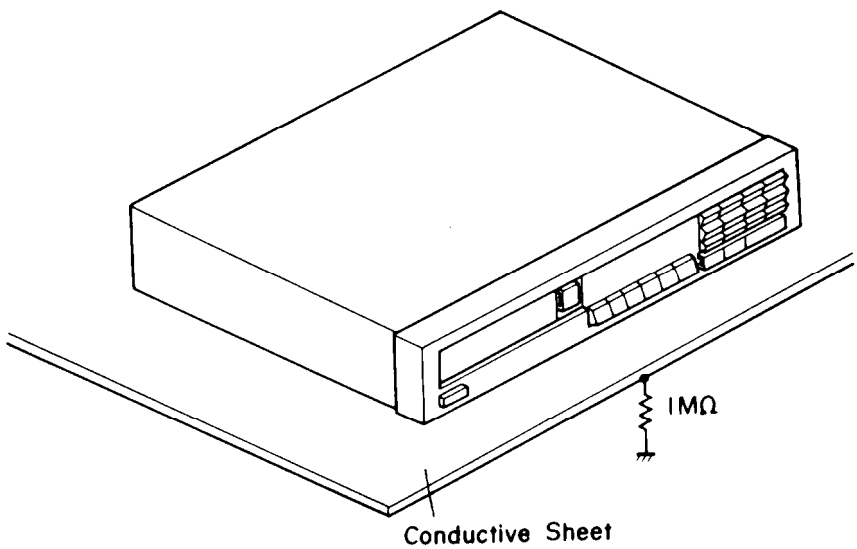
CAUTION ON REPLACEMENT OF PICKUP

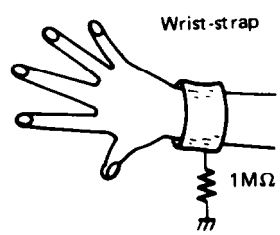
The laser diode in the optical pick-up block is so sensitive to static electricity, surge current and etc. that the components are liable to be broken down or its reliability remarkably deteriorated.

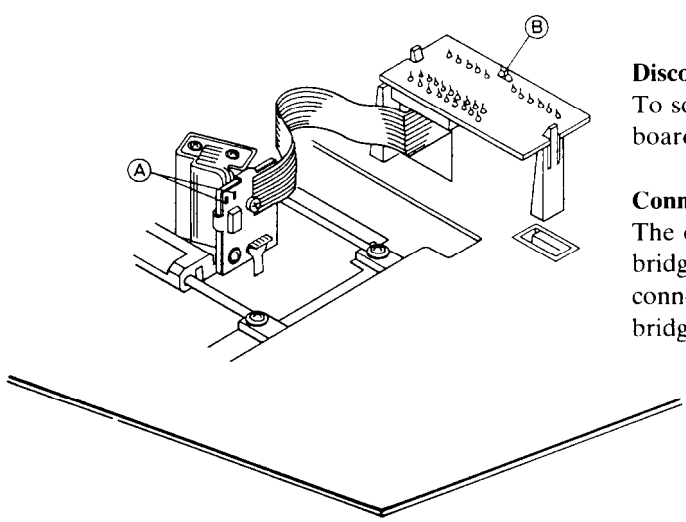
During repair, carefulley take the following precautions. (The following precautions are included in the service parts).

PRECAUTIONS

1. **Ground for the work-desk.**
   Place a conductive sheet such as a sheet of copper (with impedance lower than $10^6\Omega$) on the work-desk and place the set on the conductive sheet so that the chassis.
2. **Grounding for the test equipment and tools.**
   Test equipments and toolings should be grounded in order that their ground level is the same the ground of the power source.
3. **Grounding for the human body.**
   Be sure to put on a wrist-strap for grounding whose other end is grounded.
   Be particularly careful when the workers wear synthetic fiber clothes, or air is dry.
4. **Select a soldering iron that permits no leakage and have the tip of the iron well-grounded.**
5. **Do not check the laser diode terminals with the probe of a circuit tester or oscilloscope.**





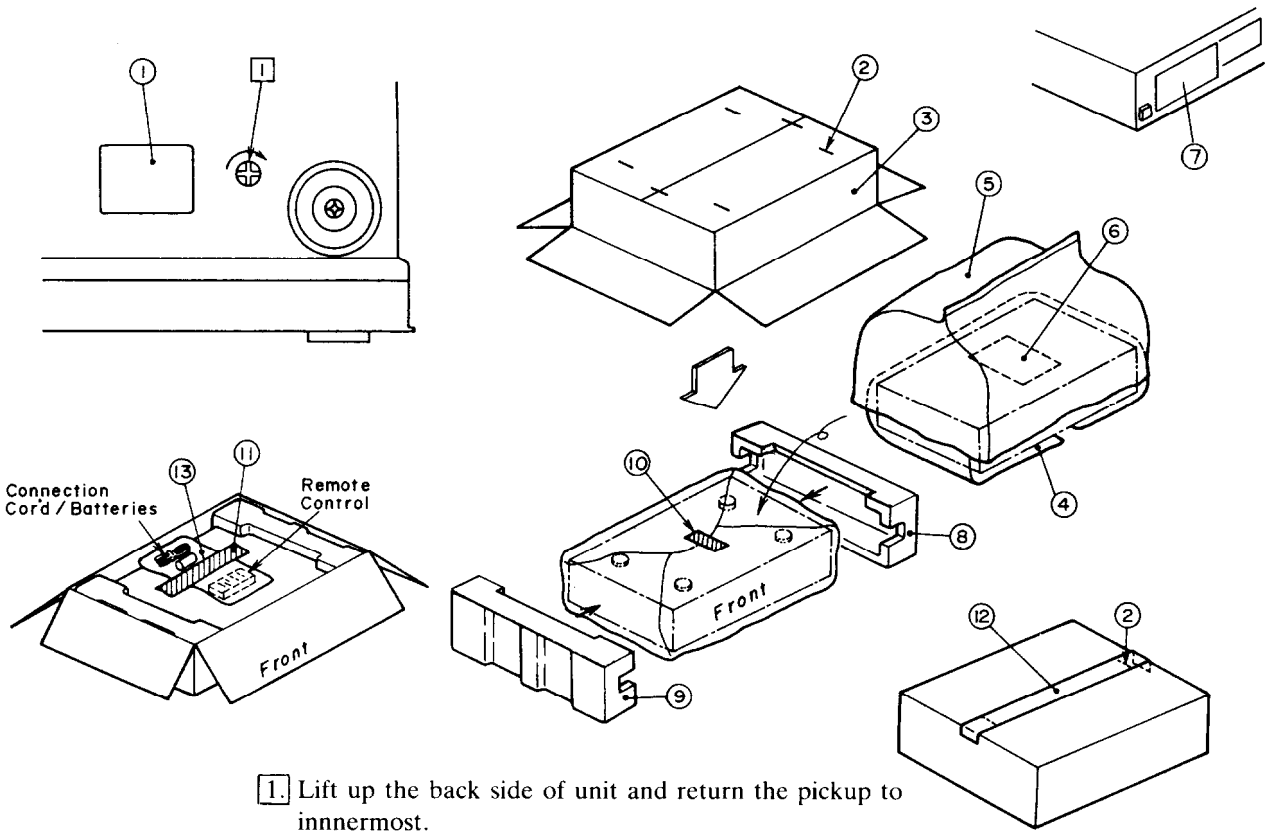


Disconnection
To solder Ⓐ position and Ⓑ position on the terminal PC board before removing the optical pickup.

Connection
The optical pick-up of service part has a protective solder bridge for Ⓐ position. That must be removed after connecting the pickup. Then, remove a protective solder bridge for Ⓑ position.

Fig. 11

PACKING VIEW

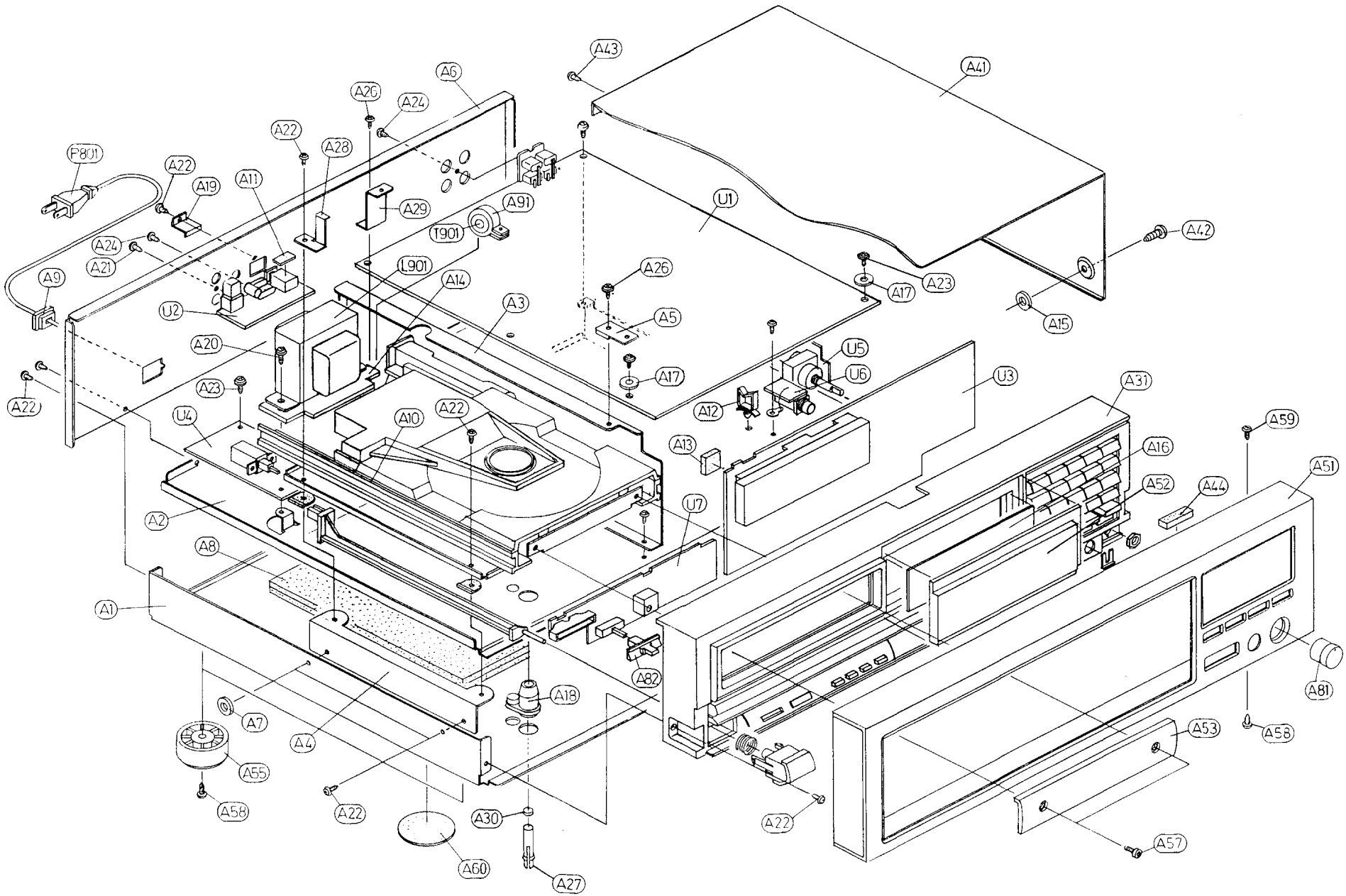


1. Lift up the back side of unit and return the pickup to innnermost.
   Use a screwdriver to turn the lock lever (about 90°) in the round hole in the direction of arrow. (Clockwise)

REF. NO.	PART NO.	DESCRIPTION
1	29361123	Label
2	282301	Sealing hook
3	29052006A	Master carton box
4	29095012-1	500 ×800mm, Protection sheet
5	29100105	550 ×680mm, Poly-vinyl bag
6	29355153	Caution sheet
7	29095571	Sheet, door
	29355152	Caution sheet
8	29091363B	Pad L
9	29091364B	Pad R
10	261504	Adhesive tape
11	29110071	Damplon tape
12	29110071-1	Damplon tape
13	Accessary bag ass'y	
	29341474	Instruction manual <D>
	29341475	Instruction manual <G/U>
	2010097	Connection cord, audio
	2010200	Connection cord RI
	2050022A	Connection cord, optical
	24140028	RC-122C, Remote control unit
	3010054	UM-3, Two batteries
	29365019	Warranty card <N>
	29358002G	Service station list <N>
	25055040	CV-K-2, Conversion plug <U>
	29100097	Poly-vinyl bag

NOTE: <D>: Only 120V model
<G>: Only 220V/240V models
<U>: Only worldwide model

CHASSIS-EXPLODED VIEW



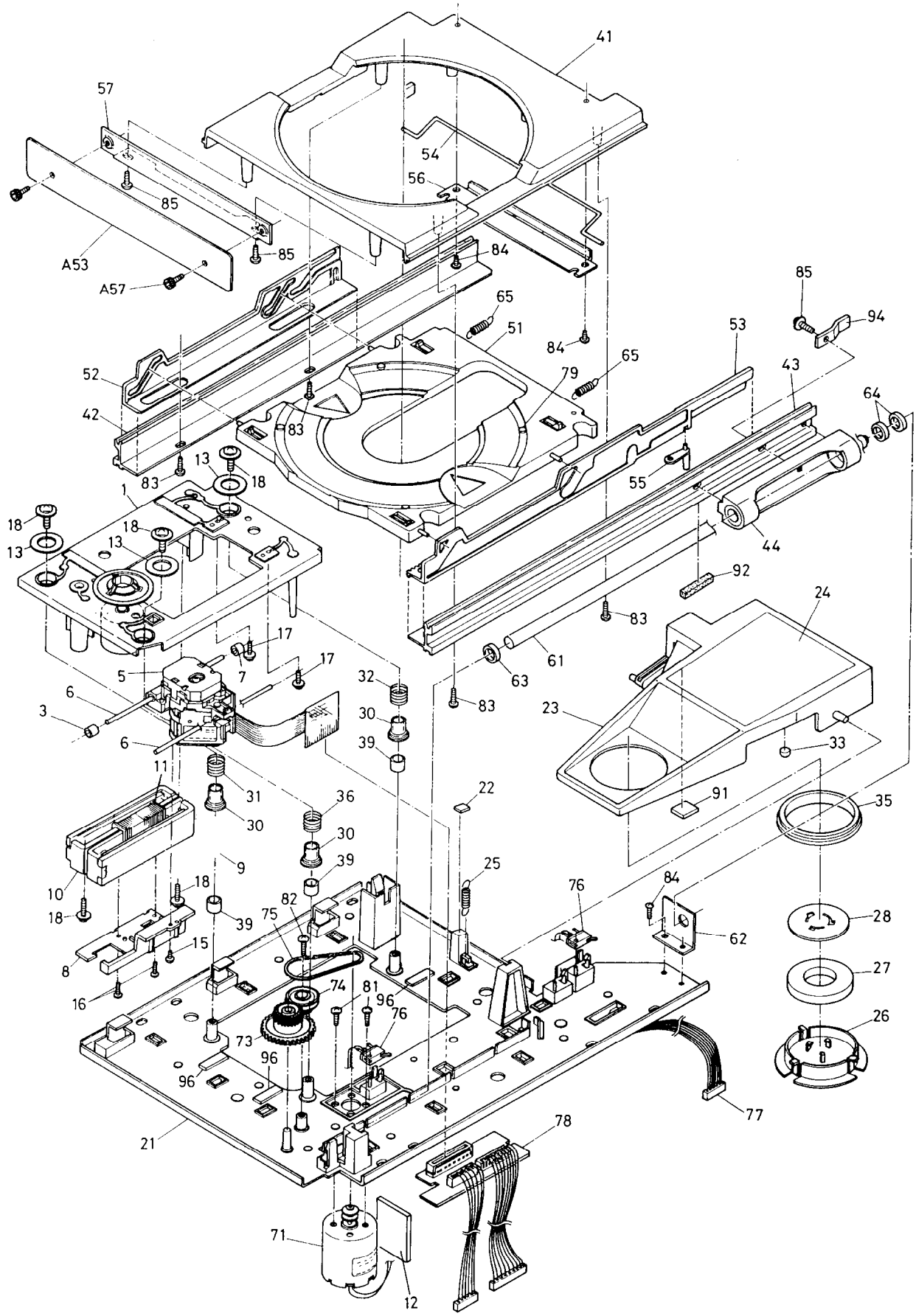
PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
A1	27100170B	Chassis
A2	27100169B	Chassis U
A3	27130542A	Bracket C
A4	27130596	Bracket L
A5	27141311	Bracket T
A6	27121312	Back panel <D>
	27121312-1	Back panel <G>
	27121312-2	Back panel <W>
	27121312-4	Back panel <QA>
A7	27175011C	Leg (Cushion)
A8	28141007	t8×20×40, Cushion
A9	27300750	⚠ Bushing (Strainrelief)
A10	27273101A	Joint, power
A11	27270278	Spacer
A12	27300833	WS-2NS, Clamp
A13	28140903	Cushion
A14	27270214A	Spacer
A15	27270212	Spacer
A16	28133202	Back plate
A17	870060	W3×15, Flat washer
A18	27267558-1	Guide
A19	27141281A	Bracket
A20	830440109	4TTC+10C (BC), Self-tapping screw
A22	834430088	3TTS+8B (BC), Self-tapping screw
A23	831130088	3TTW+8B, Self-tapping screw
A24	834230108	3TTS+10B (Ni), Nickel screw
A25	834430068	3TTS+6B (BC), Self-tapping screw
A26	838440089	4TTB+8C (BC), Self-tapping screw
A27	27301184	Lock pin
A28	27141310	Bracket, rail
A29	27141309A	Bracket
A30	28140918	Cushion
A31	27110534A	Front bracket ass'y
A32	838430088	3TTB+8B (BC), Self-tapping screw
A41	28184401	Top cover
A42	838440089	4TTB+8C (BC), Self-tapping screw
A43	834430088	3TTS+8B (BC), Self-tapping screw
A44	28140408	t3×10×36, Cushion
A45	27190755	SPLS-8U, Holder
A46	27130597	Bracket PC
A51	1H100121	Front panel ass'y
A52	28191477	Clear plate
A53	27210987	Panel, door (Tray panel)
A55	27175153-1	Leg
A57	84643008	3HSB×8FN (BC), Special bolt
A58	834430088	3TTS+8B (BC), Self-tapping screw
A59	833430080	3TTP+8P (BC), Self-tapping screw
A60	27270255	Spacer
A71	801230	3STS+8BQ (BC), Self-tapping screw
A81	28323433	Knob
A82	28323152-1	Knob MODE
A91	260223	Clamp for L901 <D>
	260221	Clamp for L901 <G/Q/W>
L901	230908	⚠ TR-23-11-14, Core <D>
	230907	⚠ TR-16-8-16, Core <G/Q/W>
P801	253112A	⚠ AS-UC-4#18, Power supply cord <D>
	253148 or 253150	⚠ AS-CEE 250V 2.5A, Power supply cord <G/W>
	253118	⚠ AS-SAA, Power supply cord <QA>
S902	25065168	⚠ HXW0131-01-060, Voltage selector switch <W>
T901	2300501	⚠ NPT-1051D, Power transformer <D>
	2300502	⚠ NPT-1051G, Power transformer <G>
	2300503	⚠ NPT-1051ADGQ, Power transformer <W>
	2300504	⚠ NPT-1051Q, Power transformer <QA>
U1	1H100539-1	NAAR-3739-1, Main circuit pc board ass'y <D>
	1H100539-1A	NAAR-3739-1A, Main circuit pc board ass'y <G/W/QA>
U2	1H100541-1	NADG-3741-1, Opto./digital output pc board ass'y
U3	1H100540-1	NADIS-3740-1, Display circuit pc board ass'y
U4	1H100545-1	NAPS-3745-1, Power switch pc board ass'y
U5	1H100543-1	NAAF-3743-1, Headphone amplifier pc board ass'y
U6	1H100544-1	NAAF-3744-1, Headphone terminal pc board ass'y
U7	1H100542-1	NASW-3742-1, Switch pc board ass'y
W1	260208	Binder

NOTE: <D>: Only 120V model
<G>: Only 220V model
<W>: Only Worldwide model
<QA>: Only Australian model

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

MECHANISM-EXPLODED VIEW



PARTS LIST

REF. NO.	PART NO.	DESCRIPTION
1	1H048901	Spindle motor ass'y
3	27270264-1	Spacer
5	24110003	DLBA2Z2001A, Optical pickup
6	27260287	Shaft
7	27270264-1	Spacer
8	27301129B	Plate
10	24502250	Linear motor ass'y
11	24502236A	Coil
12	28140916	Cushion E
13	28140913	Cushion B
15	82542006	2B+6F (BC), Binding screw
16	833420068	2TTP+6B (BC), Self-tapping screw
17	831430100	3TTW+10P (BC), Self-tapping screw
18	801414	Special screw
21	27100166D	Chassis L
22	28140891	Cushion A
23	27301131C	Arm
24	29360911	Label LASER 3
25	27180402	Spring
26	27301132B	Cap CH
27	28181019A	Magnet CH
28	27301133	York CH
30	27301134	Cushion rubber
31	27180403A	Spring F
32	27180404B	Spring R
33	28140860	Cushion
35	27301172	Cushion rubber
36	27180417	Spring G
39	28140917	Tube
41	27301124	Disc tray
42	27301135A	Rail L
43	27301136	Rail R
44	27301126	Guide bearing
51	27301137C	Disc plate
52	27301138	Cam plate L
53	27301139A	Cam plate R
54	27260280A	Shaft
55	27301140A	Stopper
56	27301141A	Plate
57	27141275	Bracket
61	27260293	Shaft
62	27141374	Bracket
63	27270265A	Spacer
64	27270276	Spacer
65	27180418	Spring
71	1H048902	Disc motor ass'y
73	27301142	Pulley gear
74	27301143A	Flat wheel
75	27301162	Rubber belt
76	25065322	NMS-1214, Microswitch
77	2009990026	Socket ass'y
78	1H100546-1	NAETC-3746-1, Terminal pc board ass'y
79	27301180A	Cushion
81	82143004	3P+4FN (BC), Pan head screw
82	831126060	2.6TTW+6P, Self-tapping screw
83	838430088	3TTB+8B (BC), Self-tapping screw
84	834430068	3TTS+6B (BC), Self-tapping screw
85	834430088	3TTS+8B (BC), Self-tapping screw
91	28140908	Cushion K
92	28140909	Cushion L
94	27141317	Bracket, switch
96	28140911	Cushion P

DISASSEMBLING PROCEDURES

Top cover

Remove a screw holding the back panel and top cover.
Remove the four screws holding the top cover and chassis.

Main circuit PC board

Remove the top cover.
Remove the eight screws holding the back panel and chassis.
Remove a screw holding the bracket C and opto./digital output PC board.
Remove four screws holding the main PC board and chassis.

Tray panel

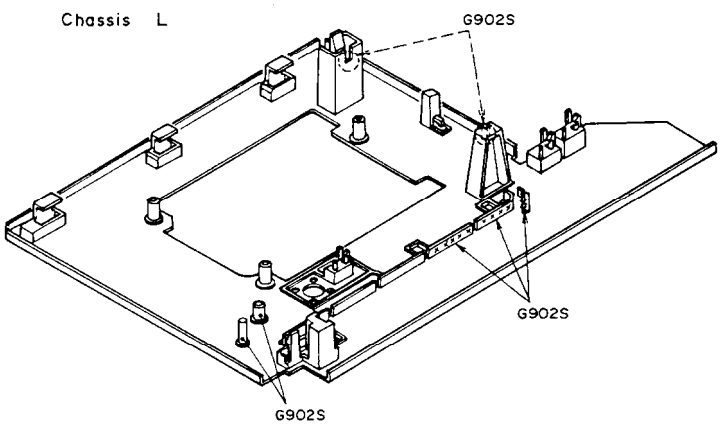
Use a hexagon wrench (2.5mm), remove the two hexagon bolt holding the tray panel and mechanical chassis.

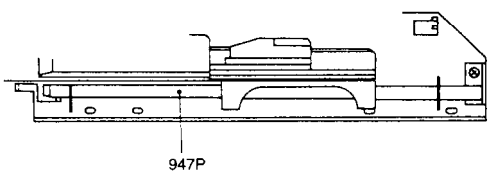
Mechanism ass'y

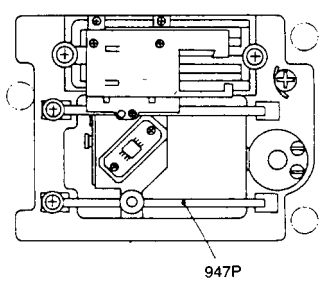
Remove the tray panel.
Remove the four screws holding the mechanism and chassis.

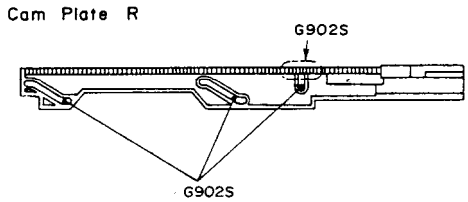
Caution: When disconnect the sockets P101 and P102 on the main circuit PC board, solder the B point on the terminal PC board or the A point on the pickup. (Refer page 6) After remove the flexible PC board of pickup from terminal PC board, remove the terminal PC board.

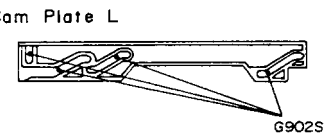
LUBRICATION

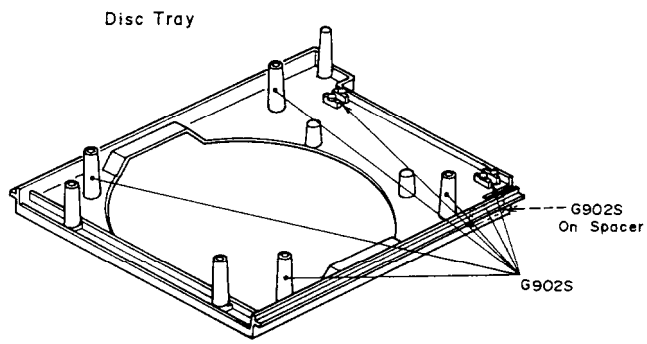






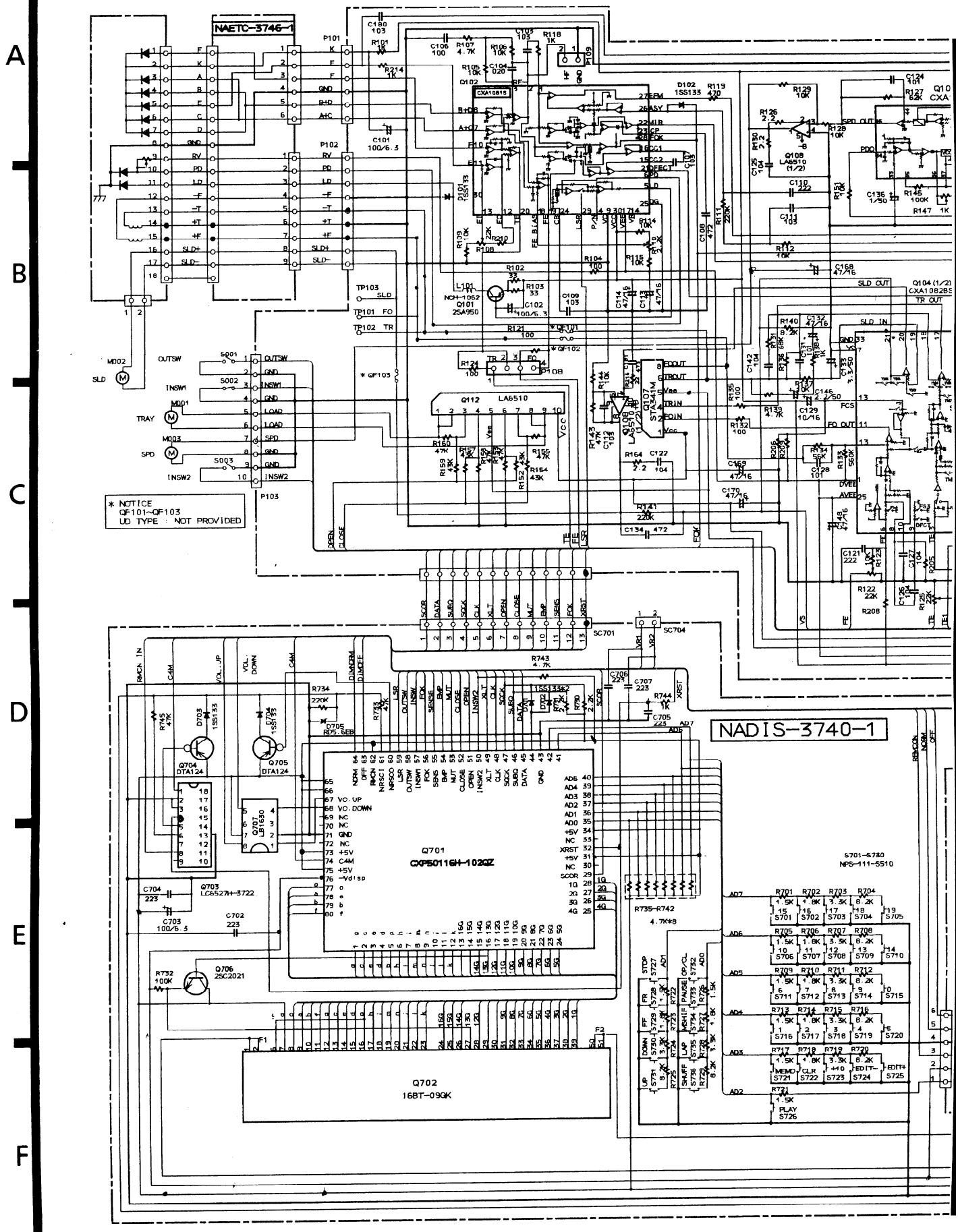


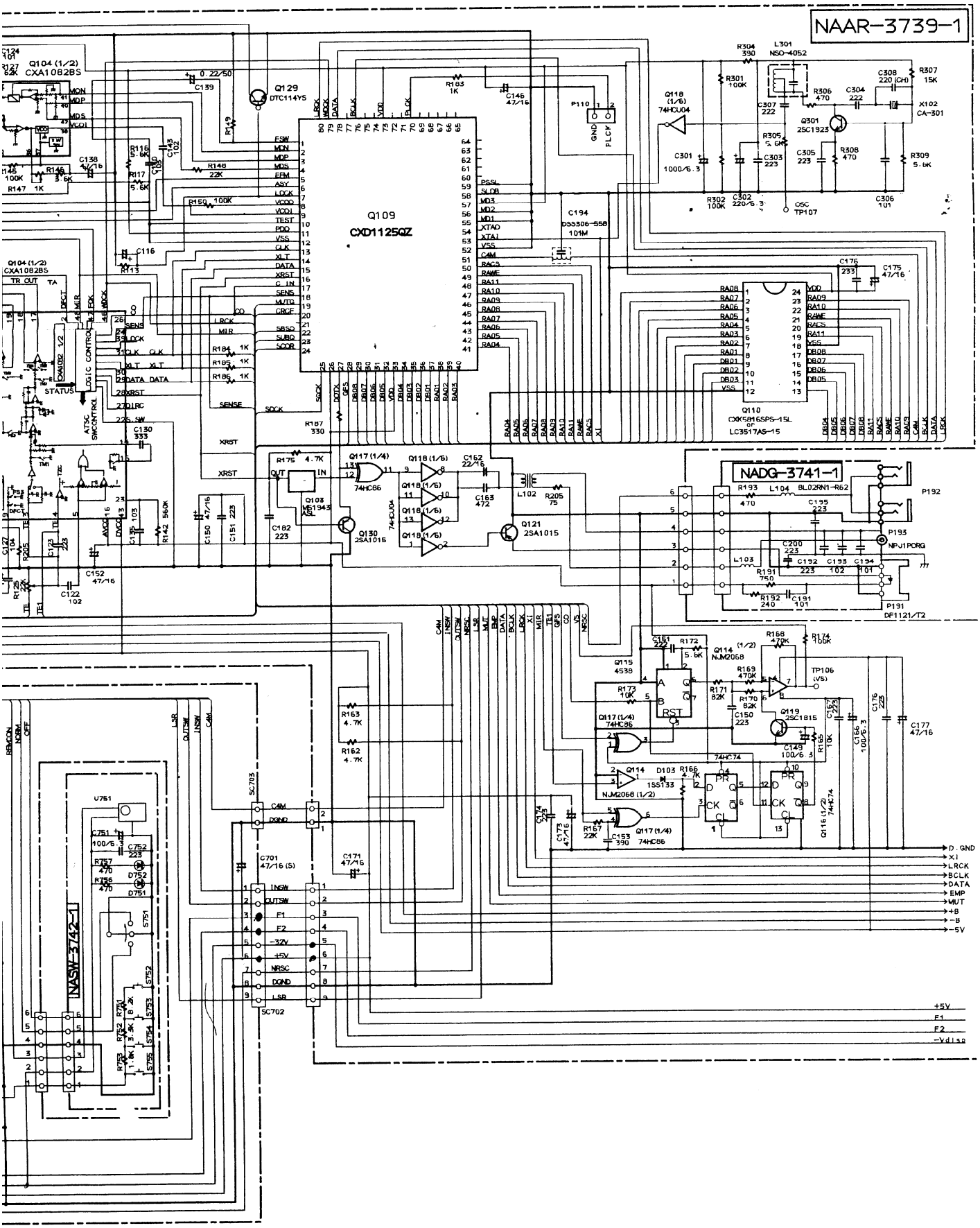




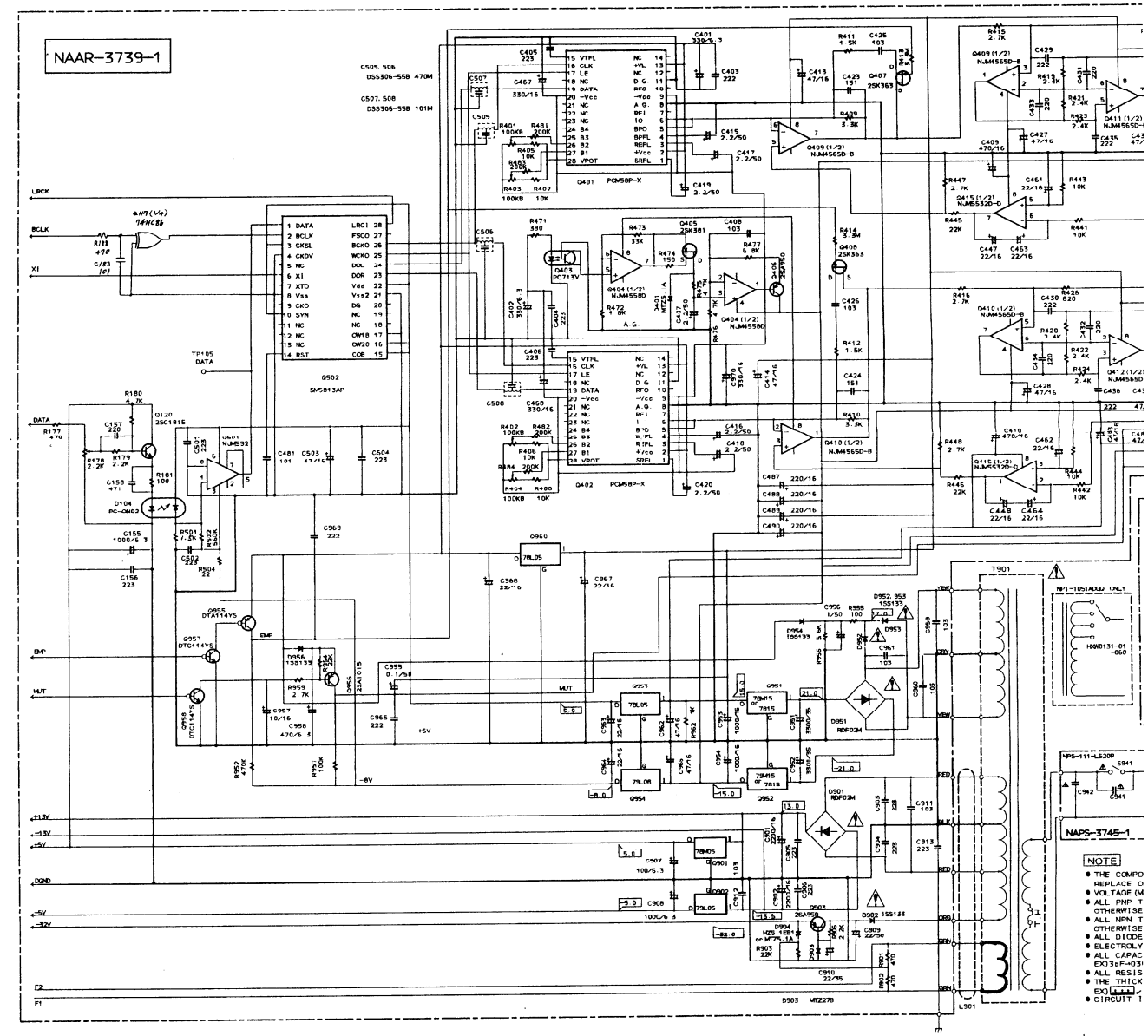
PART NO.	
947P	260448
G902S	260447

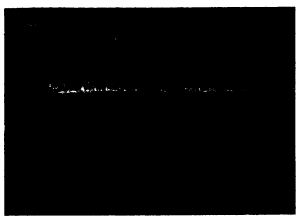
SCHEMATIC DIAGRAM



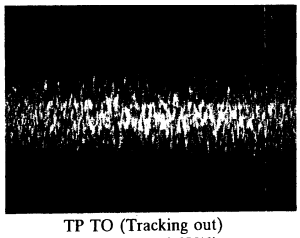

NAAR-3739-1
NADG-3741-1
NASW-3742-1
Q109
CXD1125QZ
Q104 (1/2)
CXA1082BS
Q129
DTC114YS
Q110
CXK5816SPS-15L
or
LC3517AS-15
Q121
2SA1015
Q130
2SA1015
Q103
2SA1943
Q301
2SC1923
Q119
2SC1815
Q114
NJM2068
Q115
4538
Q116 (1/2)
74HC74
Q117 (1/4)
74HC86
Q118 (1/6)
74HCU04
L301
NSO-4052
L102
L103
L104
BL02RN1-R62
P110
P191
P192
P193
NPJ1PORG
DF1121/T2
TP106
TP107
SC701
SC702
SC703
D103
1SS133
STATUS
LOGIC CONTROL
ATSC SW CONTROL
D.GND
XI
LRCK
BCLK
DATA
EMP
MUT
+B
-B
-5V
+5V
F1
F2
-Vdisp

SCHEMATIC DIAGRAM

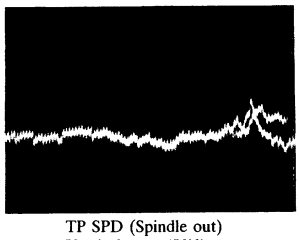




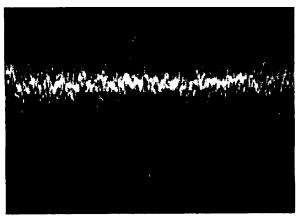
TP RF (RF signal)
Vertical : 1V/div.
Holizontal : 1 ms/div.
DC, Ground: Center



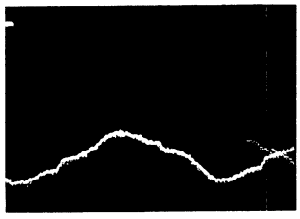
TP TO (Tracking out)
Vertical : 0.2V/div.
Holizontal : 0.5 ms/div.
DC, Ground: Center



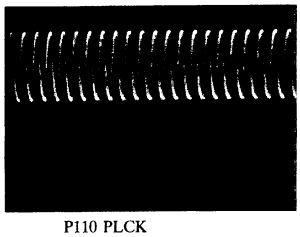
TP SPD (Spindle out)
Vertical : 1V/div.
Holizontal : 5 ms/div.
DC, Ground: Center



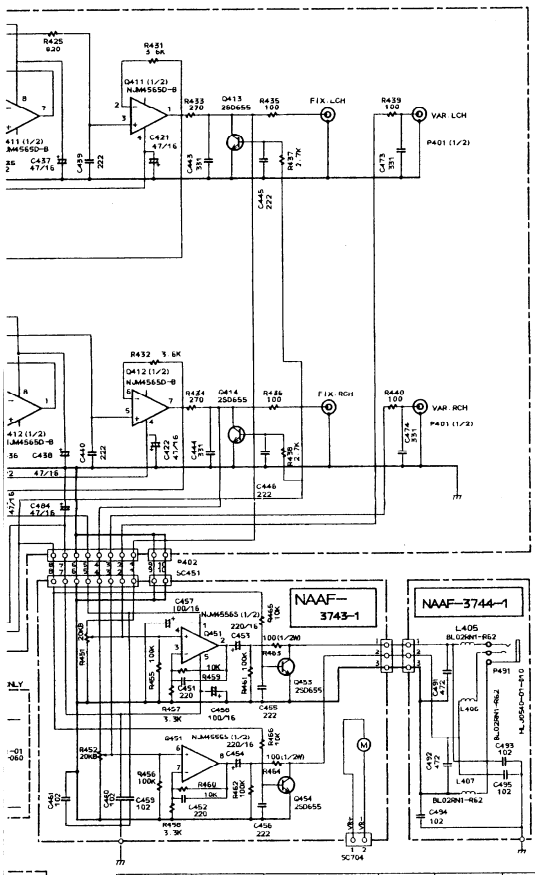
TP FO (Focus out)
Vertical : 0.5V/div.
Holizontal : 0.5 ms/div.
DC, Ground: Center



TP SLD (Slide out)
Vertical :2V/div.
Holizontal :20 ms/div.

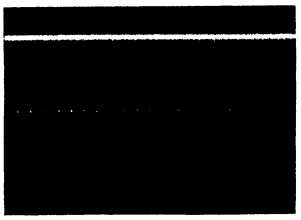


P110 PLCK
Vertical : 0.5V/div.
Holizontal : 0.2 μs/div.
DC, Ground: Center

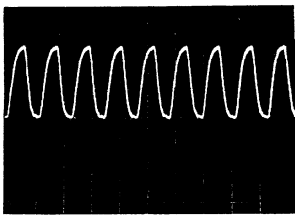


	RATING	T901	GP101-103	P921	C941	C942	
UD	AC120V/60Hz	NPT-1051D	WITHOUT	AS-UC-4 #18	0.01/125V	0.0047/125V	TR-23 -11-14
UG	AC230V/50Hz	NPT-1051G	WITH	AS-CEE 250V 2.5A	0.01/400V	0.0047/400V	
UJ	AC110/120/220/240V 50/60Hz	NPT-1051ADGD	WITH	AS-CEE 250V 2.5A	0.01/400V	0.0047/400V	TR-16 -8-16
UD	AC240V/50Hz	NPT-1051Q	WITH	AS-5AA	0.01/400V	0.0047/400V	

COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR SAFETY.
REPLACE ONLY WITH PART NUMBER SPECIFIED.
VOLTAGE (MEASURED WITH VOLTMETER) ◁ IS DC VOLTAGE. (NO INPUT SIGNAL)
UNLESS NOTED PNP TRANSISTORS ARE EQUIVALENT TO 2SA1015-GR
UNLESS NOTED NPN TRANSISTORS ARE EQUIVALENT TO 2SC1815-GR
UNLESS NOTED DIODES ARE EQUIVALENT TO 1SS133.
ELECTROLYTIC CAPACITORS (#) ARE IN μF/WV.
UNLESS OTHERWISE NOTED CAPACITORS ARE IN pF/50WV.
1pF→010, 33pF→330, 330pF→331, 0.033μF→333
UNLESS OTHERWISE NOTED RESISTORS ARE IN OHMS 1/4 WATTS.
THICK LINES IN PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
PRINTING SIDE
CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT

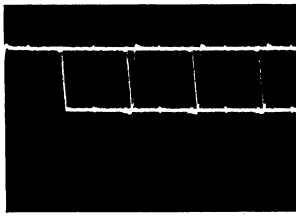


XLT
Vertical : 2V/div.
Holizontal: 0.5 ms/div.

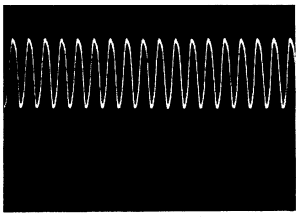


BCKO (Q502 Pin 26)
Vertical : 2V/div.
Holizontal: 0.1 μs/div.
AC

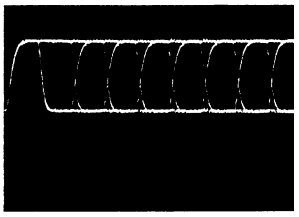
CLK
Vertical : 2V/div.
Holizontal : 50 μs/div.
DC, Ground: Center



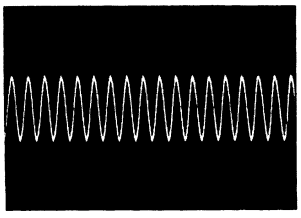
TP105 DATA
Vertical : 2V/div.
Holizontal : 0.2 μs/div.
DC, Ground: Center



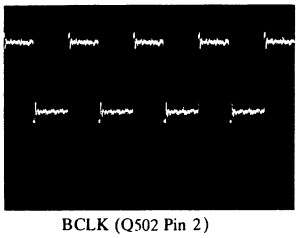
XI (Q401/Q402 Pin 16)
Vertical : 2V/div.
Holizontal: 0.1 μs/div.



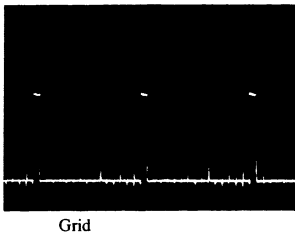
DATA (Q502 Pin 24)
Vertical : 2V/div.
Holizontal : 0.1 μs/div.
DC, Ground: Center



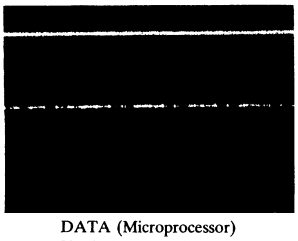
Vertical : 100mV/div.
Holizontal: 0.1 μs/div.
X'tal (TP107)



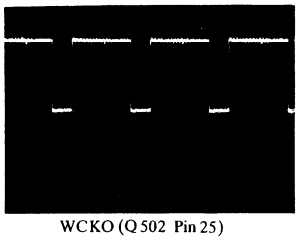
BCLK (Q502 Pin 2)
Vertical : 2V/div.
Holizontal : 0.2μs/div.
DC, Ground: Center



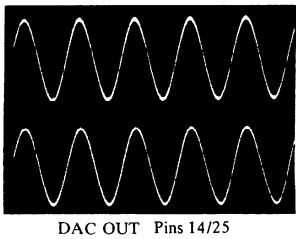
Grid
Vertical : 10V/div.
Holizontal : 1 ms/div.
DC, Ground: Center



DATA (Microprocessor)
Vertical : 2V/div.
Holizontal : 0.5 ms/div.
DC, Ground: Center



WCKO (Q502 Pin 25)
Vertical : 2V/div.
Holizontal: 1 μs/div.



DAC OUT Pins 14/25
V : 2V
H : 0.5 ms

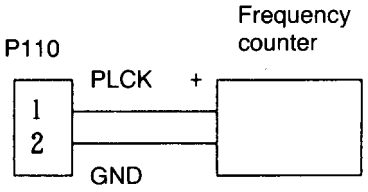
ADJUSTMENT PROCEDURES

Instruments required

Dual trace oscilloscope, Frequency counter, AF oscillator, Test disc (SONY YEDS-18), AC voltmeter, Jitter meter, and Socket P4(Part no. 25050138)

1. VCO frequency adjustment

Connect the frequency counter to terminal P110.
Turn the power switch to ON.(No load the disc.)
Adjust R147 until the frequency counter reading becomes 4322 ±5kHz.
After adjustment, disconnect the frequency counter.



2. Focus offset adjustment

Load the test disc YEDS-18 on the tray and play the track 2.
Connect the oscilloscope or jitter meter to terminal P109.
(Oscilloscope)
Adjust R110 until a clear trace of waveform pattern as shown photo 1 appear on the oscilloscope.
When the amount of jitter is broad, set R110 to mechanical center.
(Jitter meter)
Adjust R110 until the jitter meter reading becomes minimum.(Less than 10ns.)
After adjustment, disconnect the oscilloscope or jittter meter.

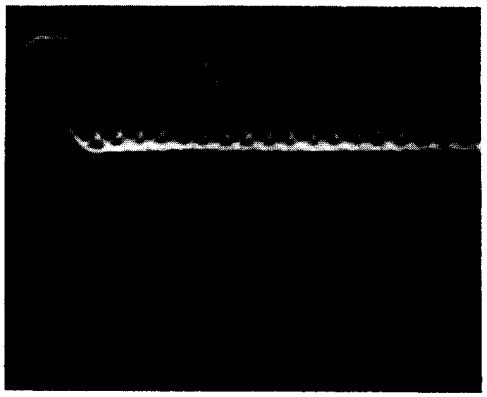
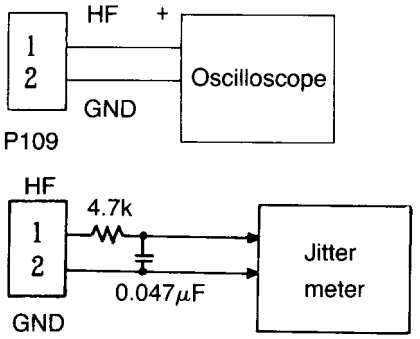


Photo 1



Oscilloscope range
Vertical : 0.5V/div.
Holizontal : 0.2 μs/div.
DC, Ground: Center

3. Tracking offset adjustment

Connect the short clip between TP105 and Ground of digital section.
Turn R125 to minimum position.(Counter clockwise)
Connect the oscilloscope between pin 3 (TR) of P108 and pin 2 (GND) of P109.
Adjust R108 until the center of tracking error signal on the oscilloscope becomes GND level.
Turn R125 to the mechanical center.
After adjustment, disconnect the oscilloscope and short clip.

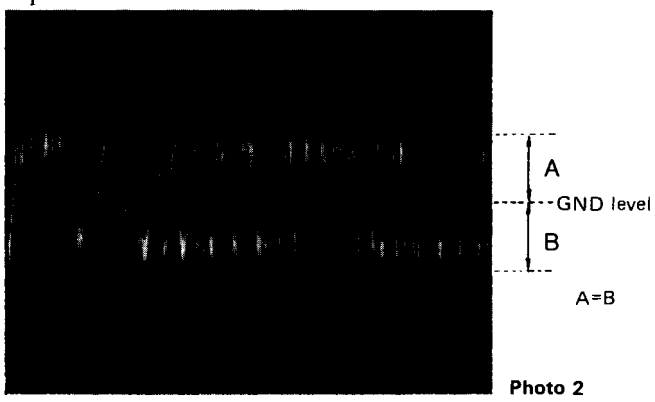
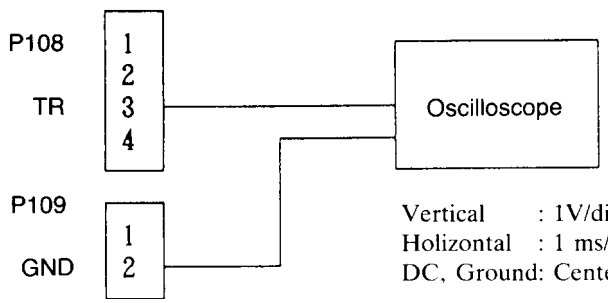


Photo 2



Vertical : 1V/div.
Holizontal : 1 ms/div.
DC, Ground: Center

4. Focus gain adjustment

Set the output of AF oscillator to 800Hz, 1~1.5Vp-p.
Play the track 2 of test disc.
Connect the oscilloscope and the AF oscillator as shown below.

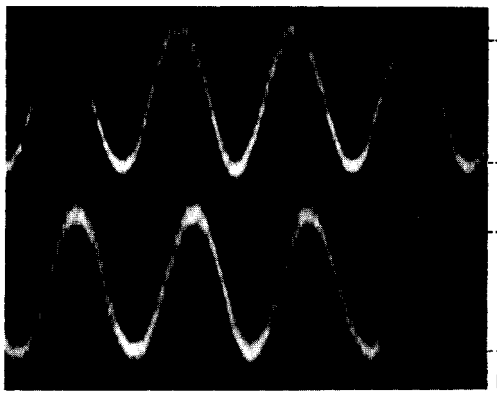
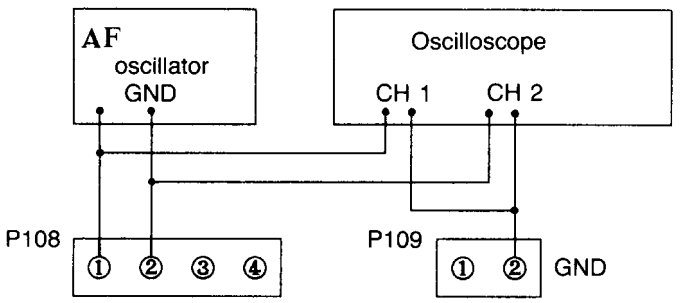


Photo 3



Vertical : 0.5V/div.
Holizontal: 0.5 ms/div.

Adjust R122 until 800Hz components of channels 1 and 2 on oscilloscope become same level.
After adjustment, disconnect the AF oscillator and the oscilloscope.

5. Tracking gain adjustment

Set the output of AF oscillator to 1.2kHz, 1~1.5Vp-p.
Play the track 2 of test disc.
Connect the oscilloscope and the AF oscillator as shown below.

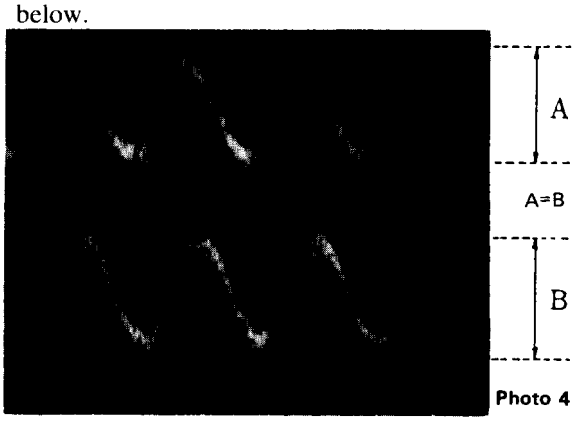
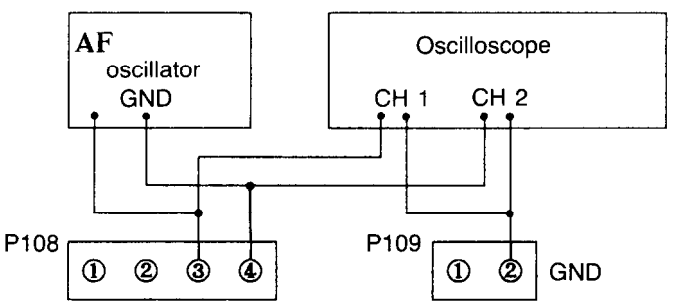


Photo 4



Vertical : 0.5V/div.
Holizontal: 0.2 ms/div.

Adjust R125 until 1.2kHz components of channels 1 and 2 on oscilloscope become same level.
After adjustment, disconnect the AF oscillator and the oscilloscope.

6. Oscillator circuit level adjustment

Connect the oscilloscope to the test point TP107. Adjust L301 until the level of waveform on the oscilloscope becomes 250mV.
Note: Use the high impedance probe 10:1.

7. Opto. transmitter system adjustment

Connect the oscilloscope to the test point TP105. Play the track 2 of test disc.
(When R501 is 1.5k) 〈After modification〉
Adjust R178 until the cross point of data waveform as shown photo 5 becomes on the bottom side.
(When R501 is 4.7k) 〈before modification〉
Adjust R178 until the cross point of data waveform as shown photo 6 becomes on the top side.

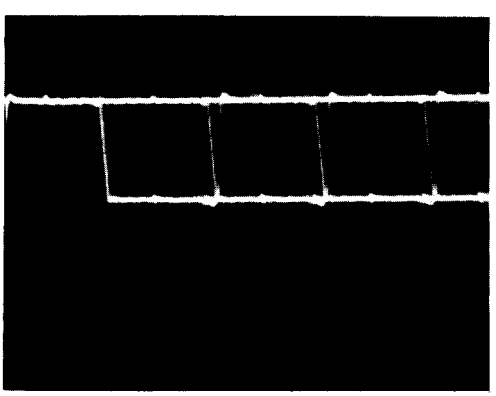
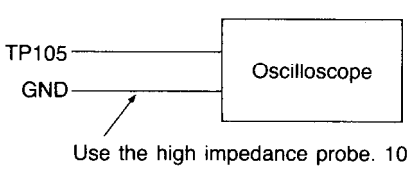


Photo 5

Vertical : 2V/div.
Holizontal : 0.2 μs/div.
DC, Ground: Center



Use the high impedance probe. 10:1.

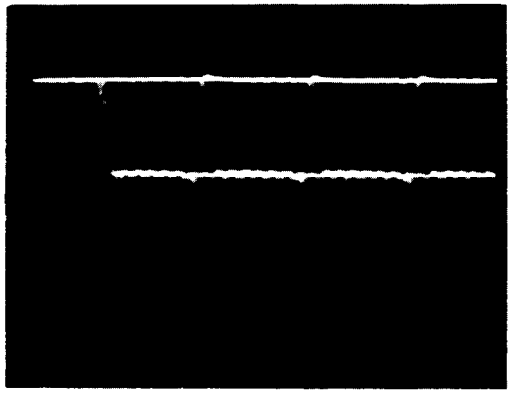
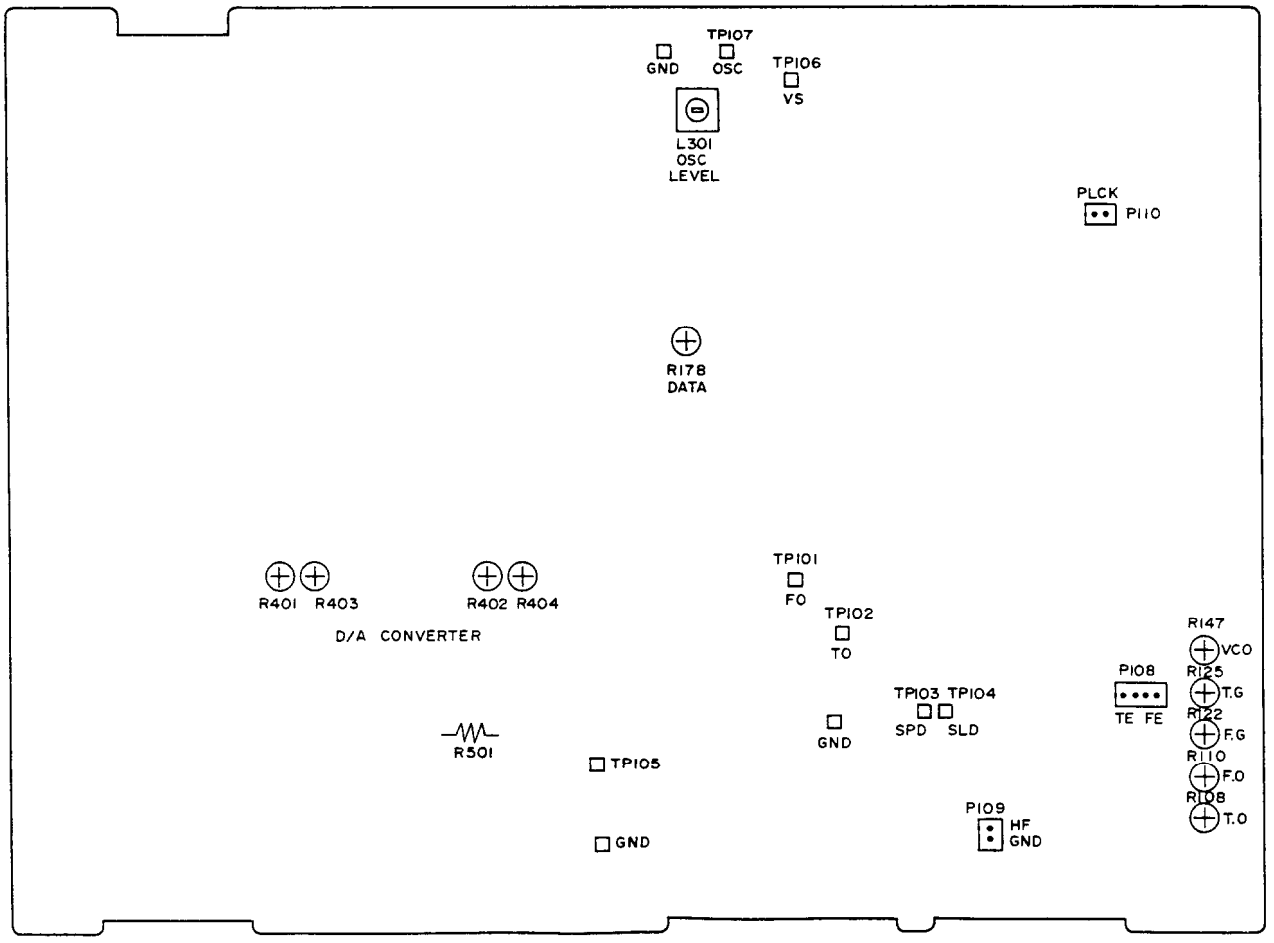


Photo 6

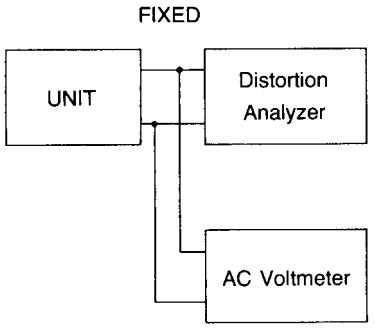
Vertical : 2V/div.
Holizontal : 0.2 μs/div.
DC, Ground: Center



Adjustment point

8. DA coverter circuit adjustment

1. Connect the distortion analyzer and the AC voltmeter until to the terminal FIXED. (Output)
   Play the track 2 of test disc.
2. Adjust R403 (R404) until the indication of distortion analyzer becomes minimum.
3. Adjust R401 (R402) until the indication of distortion analyzer becomes minimum.
4. Repeat the steps 2 and 3 until no further adjustment is necessary.
5. Read the output level and regard it as 0dB.
6. Play the track 17.
7. Adjust R403 (R404) until the output level becomes −60dB.



PRINTED CIRCUIT BOARD-PARTS LIST

MAIN CIRCUIT PC BOARD (NAAR-3739-1/1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q102	22240180	CXA1081S
Q103	22240018	M51943ASL
Q104	22240263	CXA1082BS
Q107	22240168	STA341M-L
Q108	22240034	LA6510
Q109	22240130	CXD1125Q
Q110	22240178 or	CXK5816SPS-15L or
	22240118	LC3517AS-15
Q112	22240034	LA6510
Q114	222956	NJM2068DD
Q115	222850381	HD14538BP
Q116	222740745	74HC74P
Q117	222740865	74HC86P
Q118	222755	74HCU04P
Q401, Q402	22240287	PCM58P-X
Q403	24120012	PC713V
Q404	222465	NJM4558D
Q409-Q412	22240201	NJM4565D-B
Q415	222902	NJM5532D-D
Q501	22240035	NJM592D8
Q502	22240288	SM5813AP
Q901	222780052	78M05
Q902	222790053	79L05
Q951	222780154MIT or	M5F7815L or
	222780155MIT	M5F78M15L
Q952	222790154MIT or	M5F7915L or
	222790155MIT	M5F79M15L
Q953, Q960	222780053	78L05
Q954	222790083	79L08
	Transistors	
Q101, Q406	2211503 or	2SA950-O or
Q903	2211504	2SA950-Y
Q119	2211183,	2SC1740-R,
	2211254 or	2SC1815-Y or
	2211255	2SC1815-GR
Q120	2211254 or	2SC1815-Y or
	2211255	2SC1815-GR
Q121	2211454 or	2SA1015-Y or
Q956	2211455	2SA1015-GR
Q129	221281	DTC114YS
Q130	2213074,	2SA933-K,
	2211454 or	2SA1015-Y or
	2211455	2SA1015-GR
Q301	2211723	2SC1923-O
Q405	2212303 or	2SK381-C or
	2212304	2SK381-D
Q407, Q408	2212524 or	2SK363-GR or
	2212525	2SK363-BL
Q413, Q414	2211705 or	2SD655-E or
	2211706	2SD655-F
Q955	2213090	DTA114YS
Q957, Q958	221281	DTC114YS
	Diodes	
D101-D103	223163	1SS133
D401	224650511 or	HZ5.1EB1 or
	224450511	MTZ5.1A
D901	22380013	RDF02M
D902	223163	1SS133
D903	224652702 or	HZ27EB2 or
	224452702	MTZ27B
D904	224650511 or	HZ5.1EB1 or
	224450511	MTZ5.1A
D951	22380013	RDF02M
D952-D954	223163	1SS133
D956	223163	1SS133
	Photo coupler	
D104	24120025	PC0N02
	X'tal	
X102	3010156	CA301
	Coils	
L101	231023	NCH-1062
L102	232136	NSRF-2046
L301	232153	NSO-4052
	Filters	
C197, C198	3030002	DSS306-55B-101M
C505, C506	3030001	DSS306-55B-470M
C507, C508	3030002	DSS306-55B-101M
	Capacitors	
C101, C102	354721019	100μF, 6.3V, Elect.
C103, C107	371121034	0.01μF ±5%, 50V, Mylar
C108, C134	371124724	4700pF±5%, 50V, Mylar
C109	371121034	0.01μF ±5%, 50V, Mylar
C110	371122224	2200pF±5%, 50V, Mylar
C111, C112	371121034	0.01μF ±5%, 50V, Mylar
C113, C114	354721019	100μF, 6.3V, Elect.
C121	371122224	2200pF±5%, 50V, Mylar
C122	371121044	0.1μF ±5%, 50V, Mylar
C123	371122234	0.022μF ±5%, 50V, Mylar
C125-C127	371121044	0.1μF ±5%, 50V, Mylar
C129	354741009	10μF, 16V, Elect.
C130	371123334	0.033μF ±5%, 50V, Mylar
C132	354744709	47μF, 16V, Elect.
C133	354780339	3.3μF, 50V, Elect.
C135	371121034	0.01μF ±5%, 50V, Mylar
C136	354780109	1μF, 50V, Elect.
C138	354744709	47μF, 16V, Elect.
C139	354782299	0.22μF, 50V, Elect.
C140, C180	371121034	0.01μF ±5%, 50V, Mylar
C142	371121044	0.1μF ±5%, 50V, Mylar
C146	354780229	2.2μF, 50V, Elect.
C148	354721019	100μF, 6.3V, Elect.
C149	354781099	0.1μF, 50V, Elect.
C150	371122234	0.022μF ±5%, 50V, Mylar
C151	371122224	2200pF±5%, 50V, Mylar
C152	354721019	100μF, 6.3V, Elect.
C155	354721029	1000μF, 6.3V, Elect.
C162	352942206	22μF, 16V, Non-polar elect.
C166, C177	354744709	47μF, 16V, Elect.
C168-C171	354744709	47μF, 16V, Elect.
C173, C175	354744709	47μF, 16V, Elect.
C181	371124734	0.047μF ±5%, 50V, Mylar
C301	354721029	1000μF, 6.3V, Elect.
C302	354722219	220μF, 6.3V, Elect.
C401, C402	354723319	330μF, 6.3V, Elect.
C403-C406	371122234	0.022μF ±5%, 50V, Mylar
C407	391280227	2.2μF, 50V, Elect. (MUSE)
C408	371121034	0.01μF ±5%, 50V, Mylar
C409, C410	354744719	470μF, 16V, Elect.
C413, C414	354744709	47μF, 16V, Elect.
C415-C420	391280227	2.2μF, 50V, Elect. (MUSE)
C421, C422	354744709	47μF, 16V, Elect.
C423, C424	372121514	150pF ±5%, 50V, Styrol
C425, C426	371121034	0.01μF ±5%, 50V, Mylar
C427, C428	354744709	47μF, 16V, Elect.
C429, C430	373302224	2200pF±5%, 125V, PP
C435, C436	373302224	2200pF±5%, 125V, PP
C437, C438	354744709	47μF, 16V, Elect.
C439, C440	373632224	2200pF±5%, 125V, KP
C443, C444	373633314	330pF ±5%, 125V, KP
C445, C446	371122224	2200pF±5%, 50V, Mylar
C447, C448	391242207	22μF, 16V, Elect. (MUSE)
C461-C464	391242207	22μF, 16V, Elect. (MUSE)
C467, C468	354743319	330μF, 16V, Elect.
C471, C472	372123314	330pF ±5%, 50V, Styrol
C473, C474	373303314	330 pF±5%, 125V, PP
C483, C484	354744709	47μF, 16V, Elect.
C487-C490	354742219	220μF, 16V, Elect.
C503	354744709	47μF, 16V, Elect.
C901, C902	354742229	2200μF, 16V, Elect.
C907	354721019	100μF, 6.3V, Elect.
C908	354721029	1000μF, 6.3V, Elect.
C909	354782209	22μF, 50V, Elect.
C910	354762209	22μF, 35V, Elect.
C911	375101045	0.1μF ±10%, 125V, Plastic
C912	379121035	0.01μF ±10%, 50V, Plastic
C951, C952	354763329	3300μF, 35V, Elect.
C953, C954	354741029	1000μF, 16V, Elect.
C955	354781099	0.1μF, 50V, Elect.
C956	354780109	1μF, 50V, Elect.
C957	354741009	10μF, 16V, Elect.
C958	354724719	470μF, 6.3V, Elect.
C959-C961	375101045	0.1μF ±10%, 125V, Plastic
C962	354744709	47μF, 16V, Elect.

CIRCUIT NO.	PART NO.	DESCRIPTION
C963, C964	354742209	22μF, 16V, Elect.
C965	371122224	2200pF±5%, 50V, Mylar
C966	354744709	47μF, 16V, Elect.
C967, C968	354742209	22μF, 16V, Elect.
C969	371122224	2200pF±5%, 50V, Mylar
C970	354743319	330μF, 16V, Elect.
	Resistors	
R108	5210066	N06HR22KBD, Semi-fixed
R110	5210060	N06HR2.2KBD, Semi-fixed
R122, R125	5210066	N06HR22KBD, Semi-fixed
R147	5210058 or 5210213	N06HR1KBD, Semi-fixed
R178	5210060	N06HR2.2KBD, Semi-fixed
R401-R404	5210070 or 5210221	N06HR100KBD, Semi-fixed
	Plugs	
P101	25055136	NPLG-6P120
P102	25055139	NPLG-9P123
P103	25055154	NPLG-10P138
P104	25055158	NPLG-14P142
P105	25055190	NPLG-9P174
P106	25055146	NPLG-2P130
P107	25055150	NPLG-6P134
P108	25055045	NPLG-4P33
P109, P110	25055038	NPLG-2P29
P402	25055154	NPLG-10P138
	Terminal	
P401	25045267	NPJ-4PDBL134
	Radiators	
	27160220	RAD51 (B)
	Socket	
	2009990067	NSAS-2P0103
	Fuses	
QF101-QF103	252112	⚠ICPN15, IC protector <G>
	Holder	
	27190751	

NOTE: <G>: Only 220V/240V/ Worldwide models

OPTO./DIGITAL OUTPUT PC BOARD (NADG-3741-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q191	24120028	DF-1121/T2, Photo coupler
P191	25045239	NPJ-1PDORG-113, Terminal, Opto. output
P192	25045172	HSJ1003-01-020, Terminal RI
SC191	2009990028A	NSAS-14P0058, Socket
L103, L104	230905	BL02RN-R26, Ferrite beads

DISPLAY CIRCUIT PC BOARD (NADIS-3740-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q701	22240286	CXP50116H-102QZ
Q703	22240173	LC6527H-3722
Q707	222963	LB1630
	Fluorescent tube	
Q702	212059	16BT-09GK
	Transistors	
Q704, Q705	2212600	DTA124ES
Q706	2212132 or 2212133	2SC2021-R or 2SC2021-S
	Diodes	
D701-D704	223163	1SS133
D705	224650562 or 224450562	HZ5.6EB2 or MTZ5.6B
	Capacitors	
C701	355744709	47μF, 16V, Elect.
C703	354721019	100μF, 6.3V, Elect.
	Resistors	
R735-R742	49163472408	4.7kohm ×8, 1/10W, Network
	Switches	
S701-S736	25035548	NPS-111-S510

CIRCUIT NO.	PART NO.	DESCRIPTION
	Sockets	
SC701	2002342810	NSAS-28P0051
SC702	2000883	NSAS-18P839
SC703	2000903	NSAS-4P859
SC704	2000755	NSAS-4P711
SC705	2000892	NSAS-12P848
	Holder	
	27190656	Display

POWER SWITCH PC BOARD (NAPS-3745-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
C941	3500065A	⚠DE7150FZ103PAC400V/125V, Capacitor IS
C942	3500077	⚠DE7150F472M, Capacitor IS
P941	25035558	⚠NPS-111-L520P, Power switch

HEADPHONE AMPLIFIER PC BOARD (NAAF-3743-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q451	222887	NJM4556S, IC
Q453, Q454	2211705 or 2211706	2SD655-E or 2SD655-F, Transistors
C453, C454	354742219	220μF, 16V, Elect. capacitors
C455, C456	371122224	2200pF±5%, 50V, Mylar capacitors
C457, C458	354741019	100μF, 16V, Elect. capacitors
R451	5104242	N16RGM20KB30F, Variable resistor
R463, R464	442521014	100ohm, 1/2W, Metal oxide film resistors
P451	25055183	NPLG-2P167, Plug
SC451	2009990030A	NSAS-20P060, Socket

HEADPHONE TERMINAL PC BOARD (NAAF-3744-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
P491	25045139	HLJ0540-01-010, Headphone terminal
L405-L407	230905	BL02RN1-R62, Ferrite beads

SWITCH PC BOARD (NASW-3742-1)

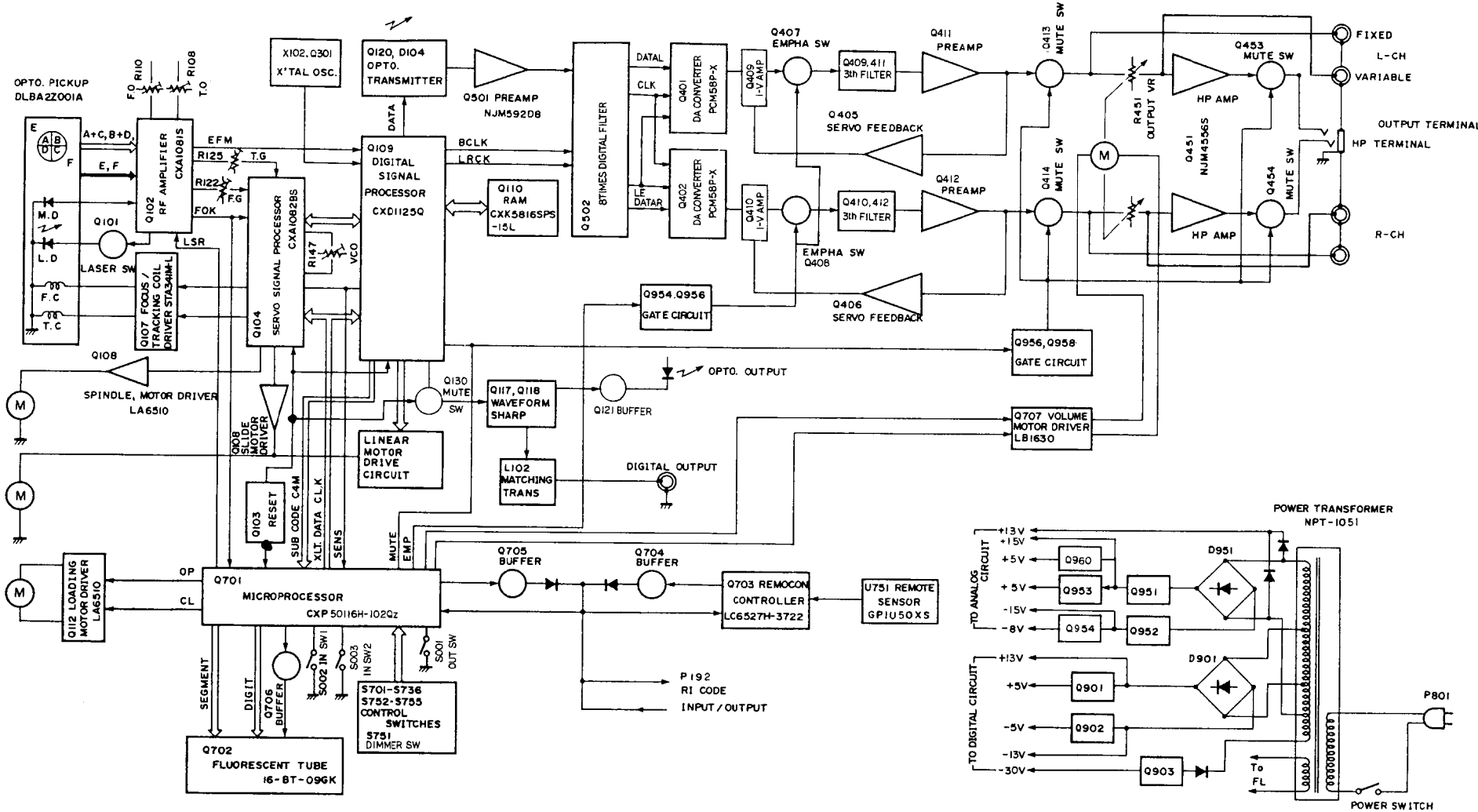
CIRCUIT NO.	PART NO.	DESCRIPTION
U751	24130003	GP1U50XS, Sensor, remote control
D751, D752	225142	SEL2913K, LEDs
C751	354721019	100μF, 6.3V, Elect. capacitor
S751	25065325	NSS-23128, Slide switch
S752-S755	25035548	NPS-111-S510, Push switches
P701	25055187	NPLG-6P171, Plug
	27190499A	Holder

TERMINAL PC BOARD (NAETC-3746-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
P001	25050361	NSCT-18P188, Socket
SC001	2000890	NSAS-12P846, Socket
SC002	2000873	NSAS-18P829, Socket

NOTE: THE COMPONENTS IDENTIFIED BY MARK ⚠ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

BLOCK DIAGRAM



DX-570